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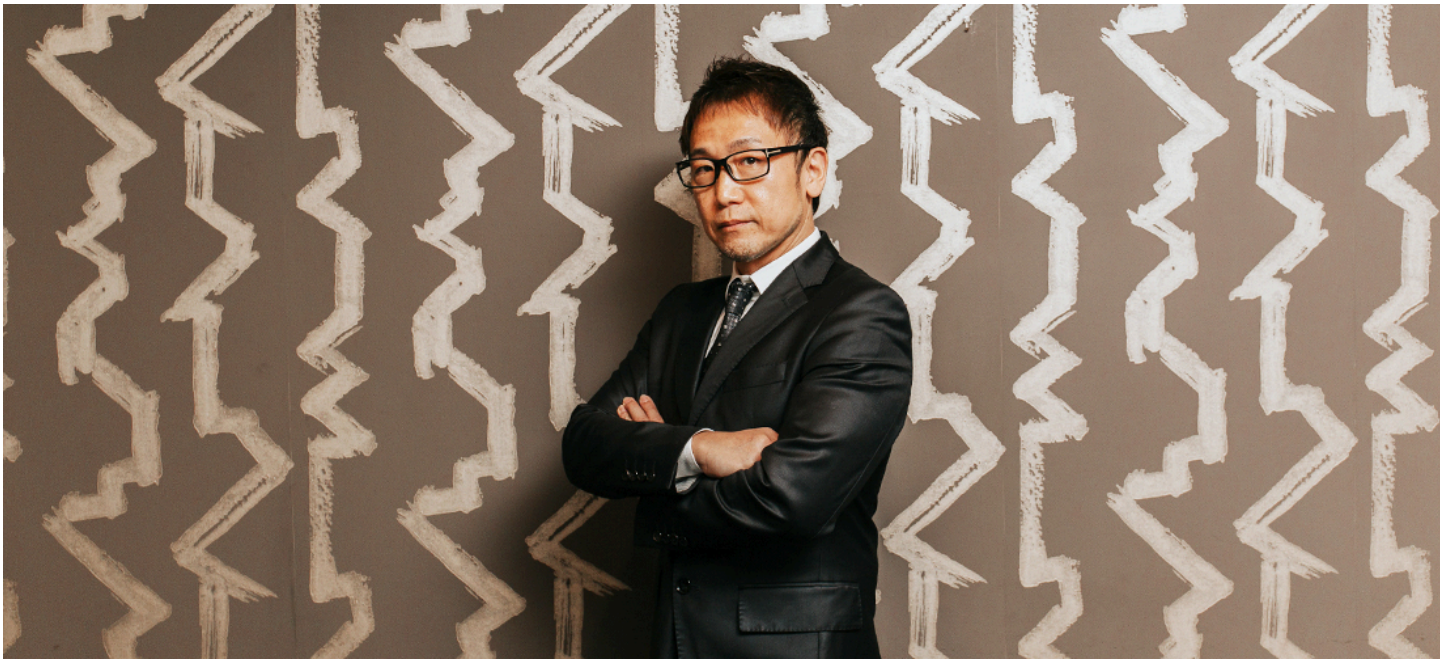
Osaka Regenerative Medicine Center

General Director Noriyuki Kubo



We would like to deliver new

therapies by quickly putting research results into practical use.

Osaka Regenerative Medicine Center is a medical institute specializing in regenerative medicine, including the Cell Processing Center (CPP), a facility for cell culturing. Regenerative medicine has potential for growth and still has issues for practical realization, although the awareness of and demand for regenerative medicine has increased since our clinic was opened. Currently, I examine and treat patients as a medical doctor while doing research at the University of Tokyo. Wanting to fulfill my own passion for being a doctor and treat patients that only I can help, I engage in research and clinical practice every day.

Year of Birth : 1967
Birthplace : Osaka
Name : Osaka Regenerative Medicine Center
Headquarters : 2F The Imperial Hotel Plaza, 8-40, 1-chome Tenmanbashi, Kita-ku, Osaka-shi, Osaka
Founded : 2007
Type of business : Regenerative medicine clinic
url : http://www.ormc.jp/

***Information accurate as of time of publication.**

The general public didn't have a clear understanding of regenerative medicine when I opened Osaka Regenerative Medical Center. I first studied dentistry in university, being inspired by my father who was a dentist. One of my acquaintances recommended that I study general anesthesia. He was a professor specialized in dental anesthesia, which was a rather unusual specialty. Some people tried to dissuade me from studying dental anesthesia, but the experience really helped me develop a basic understanding of the whole-body management of patients as a physician, not a dentist. I came across dental regenerative medicine when trying to find my own specialization after my first ten-year career as a dentist. I was surprised to hear that teeth can be produced for your own treatment using your own cells. The members of the laboratory at the University of Tokyo invited me to do research on regenerative medicine. I started to come to the university almost weekly from Osaka to do regenerative medicine research. I became more interested in the improvement of the awareness of regenerative medicine and its practical realization while broadening research subjects from tooth regeneration to bone regeneration. That lead to what I am doing now.

Generally, researchers are divided into separate groups within an organization: a research team and a clinical team. I have always wanted to bridge the gap

between research and practical use as a member belonging to both teams. Our clinic has realized regenerative medicine treatments and the handling of delicate cells by having our own cell culturing facilities. Thanks to my position still doing research at the University of Tokyo, I am allowed to promptly put research results into practice and provide my patients with services based on the results

I am currently involved in cell supernatants research. Cell supernatant is a fluid that is extracted during cell culturing. Regenerative medicine has not used cell supernatants efficiently. However, research results have shown that cytokine, a substance included in cell supernatant, sends signals to specific cells to collect stem cells, and that the continued treatment with cytokine would have benefits in regenerative medicine therapies.

There are several reasons to be hopeful of therapies based on cell supernatants. First, such therapies are easy for patients. To undergo cell therapy, patients must visit the institute several times to get their cells collected and cultured. Our clinic has some patients coming from overseas, and frequent visits can be very burdensome for them. However, cell supernatants from others' cells can be used without problems because the concentration for use is very weak, as long as donors have passed proper examinations. If a disease is not very serious, therapy becomes affordable and accessible. Second, it

can meet the demand for treatment of allergies and diabetes. In the case of such diseases requiring continued dosing, it would be safer and cause fewer problems if a therapy with a low concentration of cell supernatant is continued for a long term, rather than an intensive treatment such as cell therapy. Third, many people are arguing for determining standards for handling the therapies.

The therapies have not been fully elucidated, and different medical professionals use them differently. The effects of supernatants differ by the type of cell. It is still unknown what type of cell supernatant is suitable for certain specific purposes, such as inflammatory disease treatment or anti-aging therapy. In spite of this, we are seeing successful results, for example, a patient with hemiplegia became able to move only six months after receiving cell supernatant therapy at our clinic. Therapies based on cell supernatants exhibit effects slowly and continuously, ensuring a high level of safety while dramatic changes do not happen like in other cell therapies. These therapies should have clear standards because there are higher expectations for practical use.

In the future, laws and approvals may be obstacles in the regenerative medicine field. Regenerative medicine is classified into three types: Type 1 (those with ES cells/iPS cells), Type 2, and Type 3. For Types 1 and 2, the laws set forth strict standards for facilities

handling such cells. This means that regenerative medicine must be handled very carefully. In those cases, necessary laws have not been established for therapies based on cell supernatants, leading some facilities to provide less-than-ideal therapies in a less-than-ideal environment. It is necessary to discern the good options from the bad ones. Today, many patients are unable to get correct information, with a huge volume of information scattered across the Internet. The shortcut to safe treatment is that patients educate themselves and become able to choose therapies and facilities because the laws cannot address all difficulties. That's why we struggle with how to transmit information as medical professionals.

In other Asian countries, the practical application is going slowly at the moment. However, regenerative medicine has evolved surprisingly quickly in China. China is expected to lead the way, far ahead of Japan, in the use of AI in healthcare because they share a very large amount of information very rapidly due to the absence of cliques of medical professionals, and they can utilize a massive amount of samples due to the enormous scale of population and economy. Additionally, it takes longer to get approval for new therapies in Japan than other countries. It is a long-standing issue in this country. Patients would depend on a therapy even if the chance of success is just 80%, but the Japanese government approves new

therapies only if their success rate is 99%.

You should stand in patients' shoes when establishing an environment that allow patients to receive the therapies they choose. Such obstacles hinder the fast practical realization of new therapies. I think Japanese people should be more alert to the difference in the speed of advancement of medicine between foreign countries and Japan. This country excels in craftsmanship and the ability to develop new things. However, changing the entire culture of Japan is a radical solution, and difficult. What we can do first is continue to transmit accurate information to the society little by little and patiently convey this information using clear language that is easy for patients to understand. I believe my mission is ensuring the rapidness of the research, and developing practical applications so that we can deliver new therapies to patients first. I would like to continue to realize further practical uses of these treatments while responding to environmental changes, and the changes time brings, in regenerative medicine.

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General Director
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